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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/725,904

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J. Rodney Walton

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QUALCOMM INCORPORATED
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EXAMINER

JAIN, RAJ K

ART UNIT

PAPER NUMBER

2472

NOTIFICATION DATE

DELIVERY MODE

12/10/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/725,904	Applicant(s) WALTON ET AL.	
	Examiner RAJ JAIN	Art Unit 2472	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/20/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8-12, 24, 25, 27-31 and 33-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmutz et al US 6421334 B1) in view of Wilson et al (US 2004/0176097 A1).

Regarding claims 1, 9, 20, 25, 30, 34, 37, 40 and 43, Schmutz discloses a method for processing information in a communication system (Fig. 1; abstract), comprising:

partitioning at an access point, a control channel used for transmitting control information into a plurality of subchannels (Figs. 3b para 37 a single control channel 24 subdivided into several control subchannels 26),

selecting, for each of at least two user terminals (Fig. 1 with two user terminals), one of the subchannels to be used for transmitting control information from the access point to the respective user terminal, based on one or more selection criteria (Paras 15 and 4, channel selection is based on different factors, such as frequency, QOS etc.); and transmitting control information from the access point to a particular user terminal on a particular subchannel selected for the respective user terminal (Paras 37-38 control information is transmitted to the mobile via one of the selected subchannels).

Schmutz fails to disclose transmitting from the access point, wherein at least two of the subchannels are operated at different data rates.

Wilson discloses transmitting from the access point wherein at least two of the subchannels are operated at different data rates (para 11).

Differing data rates of sub-channels allows for maximum efficiency of network limited bandwidth amongst users.

Thus it would have been obvious at the time the invention was made to incorporate the teachings of Wilson within Schmutz to allow for maximum efficiency of network limited bandwidth amongst users by providing different data rates between sub-channels.

Regarding claims 2, Schmutz discloses control information is transmitted in a segment of a data frame specifically allocated for the control channel (Fig. 3, paras 37-38, specific control channel allocation is performed based on bit assignment as needed).

Regarding claims 3, 4, 21, 31, and 38, Schmutz discloses each subchannel is associated with a specific set of operating parameters (Para 38; Fig. 3b which shows different parameters for different types of subchannels).

Regarding claims 10, and 11, Schmutz discloses performing a decoding procedure to decode the one or more subchannels, starting with a subchannel operated at a lowest data rate, until at least one of a plurality of conditions is met (Paras 41-44).

Regarding claims 8, 19, 24, 29, 33, and 39, Schmutz discloses the one or more selection criteria are selected from the group consisting of a first criterion corresponding to a link quality associated with the respective user terminal (link quality is measured as amount of data traffic on sub channels, para 6), a second criterion corresponding to quality of service requirements associated with the respective terminal (para 6), and a third criterion corresponding to a subchannel preference indicated by the respective terminal (paras 37-38).

Regarding claim(s) 12, Schmutz discloses wherein the plurality of conditions includes a first condition indicating a failure to correctly decode one of the plurality of subchannels (paras 40 and 49, acknowledgement signaling provides for indication whether or not the decoding of the subchannel was successful or not).

Regarding claim(s) 13, Schmutz discloses wherein the plurality of conditions includes a second condition indicating that control information designated for the user terminal has been obtained from one of the plurality of subchannels (para 55).

Regarding claim(s) 14, 27, 35, 41 and 44, Schmutz discloses wherein the plurality of conditions includes a third condition indicating that all subchannels have been processed (Fig. 6; Paras 53-58).

Regarding claim(s) 15, Schmutz discloses wherein performing a decoding procedure comprises: determining whether information transmitted on a subchannel has been correctly received based on a quality metric corresponding to the respective subchannel (Fig. 5; Paras 34, 39 and 53-56; a channel metrics indicates the channel usage for all the available channels and their quality levels).

Regarding claim 16, While Schmutz explicitly does not disclose a cyclic redundancy check (CRC) check, however, one skilled in the art will appreciate that CRC is inherent within a wireless system for improving quality of voice/data transmission within a link, thus Schmutz inherently incorporates CRC within its system.

Regarding claim(s) 17, 28, 36, 42 and 45, Schmutz discloses determining whether control information designated for the user terminal is present in the respective subchannel, based on an identifier associated with the user terminal (Fig. 3; aside from control information each subchannel frame allocation between base station and mobile also incorporates source and destination addressing for defining of a user terminal identifier).

Regarding claims 18, Schmutz discloses plurality of user devices 18 (Fig. 2) where each device inherently has a Medium Access Control (MAC) identifier assigned by the manufacturer of the device to uniquely identify each device.

Claims 5-7, 22, 23, 26 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmutz et al (US 2003/0202492 A1) in view of Wilson et al (US 2004/0176097 A1) and further in view of Kadous (US 2003/0165189 A1).

Regarding claim(s), Schmutz and Wilson fail to disclose transmitting from lowest to highest data rates.

Kadous discloses transmitting from lowest to highest data rates (Paras 9, 81).

Non-uniform distribution of data rates provides overall spectral efficiency with a lower minimum "received" SNR or a higher overall spectral efficiency for a specified

received SNR. Thus it would have been obvious at the time the invention was made to incorporate the teachings of Kadous within Schmutz so as to improve overall spectral efficiency with appropriate SNR levels.

Regarding claim(s) 6 and 23, Wilson discloses subchannel that is transmitted first in the plurality of subchannels includes a field to indicate whether other subchannels are also being transmitted (Fig. 4 & 5, paras 45-47). Reasons for combining same as for independent claims.

Regarding claim(s) 7, Schmutz discloses the field comprises a plurality of bits each of which corresponds to a particular subchannel and is used to indicate whether the corresponding subchannel is present in the segment allocated for transmitting control information (Fig. 3, para 36-38).

Response to Arguments

Applicant's arguments with respect to claims 1-45 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAJ JAIN whose telephone number is (571)272-3145. The examiner can normally be reached on M-TH.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raj K. Jain/

Examiner, Art Unit 2472